

DECLARATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Application No.: 10/550,259

Group Art Unit: 1794

Examiner: DHIRAJLAL S. NAKARANI

Title: TIN-DOPED INDIUM OXIDE FINE PARTICLE DISPERSION,
METHOD FOR MANUFACTURING THE SAME, INTERLAYER FILM FOR
LAMINATED GLASS WITH HEAT RAY BLOCKING PROPERTIES FORMED BY
USING SAID DISPERSION, AND LAMINATED GLASS THEREWITH

DECLARATION PURSUANT TO 37 C.F.R. 1.132

Commissioner for Patents

Washington, D.C. 20231

Sir:

I, Masahiro Hagiwara, residing in Akita, Japan, declares and states that

1. I graduated from Graduate School of Engineering, Hiroshima University, in March 1991. Since April 1991, I had been employed by Mitsubishi Materials Electronic Chemicals Co., Ltd. and had been engaged in research and development.

2. I am one of the inventors of the invention as claimed in the above-referenced application, and accordingly, I am familiar with the specification and claims of that application.

3. I am aware of the Office Action of December 23, 2008, issued on the above-referenced application, in which the present invention was rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,329,061 B2 (Kondo) in view of US Patent No. 6,673,456 (Kobata).

4. As is described in this Declaration, I conducted experiments for the purpose of demonstrating that significant effects can be realized by the combination of features of amended claim 1 in that excellent values can be obtained in all of the visible light transmittance (Tv), the solar radiation transmittance (Ts), the haze value, the reflection yellow index (reflection YI), and the Reflection measured value.

1. Preparation of dispersion of ITO fine particles

As shown in reference Table 1, ITO fine particles, dispersion stabilizers including 2-ethylhexanoic acid, acetylacetone, and dispersion stabilizer 1, an organic solvent, and triethylene glycol di-2-hexanoate (3GO) were mixed and dispersed to prepare a dispersion of ITO fine particles. This dispersion of ITO fine particles was diluted with triethylene glycol di-2-hexanoate (3GO) so as to adjust the concentration of the ITO fine particles to 0.7% by weight to obtain a dispersion of ITO fine particles for evaluation.

The visible light transmittance (Tv), the solar radiation transmittance (Ts), the haze value, the reflection yellow index (reflection YI), and the reflection measured value of the dispersion of ITO fine particles were measured in accordance with the methods described in the present specification.

2. Results and Discussion

The obtained measured values are shown in Reference Table 2.

The dispersion of ITO fine particles of Example 1 of the present invention shows high visible light transmittance (Tv), low haze value, high value of the reflection yellow index, and low reflection measured value as compared with Comparative Examples 1 to 4.

By the combination of the features of amended claim 1, significant effects can be realized that excellent values can be obtained in all of the visible light transmittance (Tv), the solar radiation transmittance (Ts), the haze value, the reflection yellow index (reflection YI), and the Reflection measured value.

Reference Table 1

	Dispersion Stabilizer		Organic Solvent		ITO Fine Particles				Plasticizer for Interlayer Film	
	Dispersion Stabilizer 1	Total Amount of Dispersion Stabilizers		Content (wt%)	Primary Average Particle Size (nm)	Lattice Constant (Å)	Content (wt%)	Content (wt%)		
Example 1	phosphate ester	10	ethanol	5	25	10.14	30	55		
Comparative Example 1	sulfate ester	10	ethanol	5	25	10.14	30	55		
Comparative Example 2	polyvinyl alcohol	10	ethanol	5	25	10.14	30	55		
Comparative Example 3	phosphate ester	0.01	ethanol	5	25	10.14	30	64.99		
Comparative Example 4	phosphate ester	25	ethanol	5	25	10.14	30	40		

Reference Table 2

	Dispersion of ITO Fine Particles (0.7 wt% Solution)					
	Tv (%)	Ts (%)	haze value (%)	Reflection YI	Reflection Measured Value	
Example 1	92.2	62.8	0.4	-7.2	3.9	
Comparative Example 1	91.0	65.7	0.5	-12.3	7.3	
Comparative Example 2	90.8	65.5	0.6	-14.2	7.8	
Comparative Example 3	89.9	63.5	0.6	-14.8	8.2	
Comparative Example 4	91.0	64.8	0.5	-10.5	5.8	

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: April 21, 2009

Masahiro Hagiwara